THE CLAIMS

What is claimed is:

1. A magnetic medium having a recording format therein, the format comprising:

a plurality of user data fields each having a predetermined length; and

at least one control field, each control field being arranged between two user data fields and containing at least one transition.

2. The magnetic medium according to claim 1, wherein at least one control field contains a first portion having a predetermined number of zeroes preceding a portion containing each transition of the control field, which precedes a second portion having the predetermined number of zeroes.

3. The magnetic medium according to claim 1, wherein at least two successive control fields contain only one transition.

4. The magnetic medium according to claim 1, wherein at least one control field contains a transition having a predetermined amplitude.

5. The magnetic medium according to claim 1, wherein at least one control field contains a dibit.

6. The magnetic medium according to claim 1, wherein at least one control field contains two transitions, and

wherein each transition has a predetermined amplitude.

7. The magnetic medium according to claim 1, wherein each control field has a predetermined length.

8. A method for adjusting channel parameters for a magnetic readback channel, the method comprising:

detecting a readback signal recorded on a magnetic medium, the readback signal containing a plurality of user data fields each having a predetermined length, and at least one control field, each control field being arranged between two user data fields and containing at least one transition; and

adjusting at least one selected readback channel parameter based on information contained in at least one control field.

9. The method according to claim 8, wherein at least one control field contains a first portion having a predetermined number of zeroes preceding a portion containing each transition of the control field, which precedes a second portion having the predetermined number of zeroes.

10. The method according to claim 8, wherein at least two successive control fields contain only one transition,

wherein the selected readback channel parameter is a frequency of a readback channel system clock, and

wherein said adjusting includes adjusting the readback channel system clock based on a relative temporal position of the transition in each successive control field.

11. The method according to claim 10, wherein said adjusting the readback channel system clock includes adjusting at least one of a frequency and a phase of the readback channel system clock.

12. The method according to claim 8, wherein at least one control field contains a transition having a predetermined amplitude,

wherein the selected readback channel parameter is a gain of the readback signal, and

wherein said adjusting includes adjusting the gain of the readback signal based on the predetermined amplitude of the transition in each control field.

13. The method according to claim 8, wherein at least one control field contains a dibit,

wherein the selected readback channel parameter is a frequency of a readback channel system clock, and

wherein said adjusting includes adjusting the readback channel system clock based on a relative temporal position a zero crossing of each dibit in each successive control field.

14. The method according to claim 13, wherein said adjusting the readback channel system clock includes adjusting at least one of a frequency and a phase of the readback channel system clock.

15. The method according to claim 8, wherein at least one control field contains two transitions and each transition has a predetermined amplitude,

wherein the selected readback channel parameter is a gain of the readback signal, and

wherein said adjusting includes adjusting the gain of the readback signal based on the predetermined amplitude of each transition in each control field.

16. The method according to claim 8, wherein at least one control field contains a positive and a negative transition and each transition has a predetermined amplitude,

wherein the selected readback channel parameter is an amplitude asymmetry of the readback signal, and

wherein said adjusting includes adjusting the amplitude asymmetry of the readback signal based on the predetermined amplitude of each transition in each control field.

17. The method according to claim 14, wherein said adjusting the amplitude asymmetry includes changing a bias current through a magnetoresistive sensor so that the magnetoresistive sensor operates in a linear operating mode.

18. The method according to claim 8, wherein at least one control field contains a transition having a predetermined amplitude,

wherein the selected readback channel parameter is a equalization response of the readback signal, and

wherein said adjusting includes adjusting the equalization response of the readback signal based on the predetermined amplitude of the transition in each control field.

19. The method according to claim 8, further comprising recording the readback signal on the magnetic medium.

20. The method according to claim 8, wherein said adjusting at least one selected readback parameter includes optimizing at least one selected readback channel parameter based on information contained in at least one control field.

21. The method according to claim 8, wherein each control field has a predetermined length.

22. A readback system, comprising

a read head configured to detect a readback signal stored on a magnetic medium, the readback signal containing a plurality of user data fields each having a predetermined length, and at least one control field, each control field being arranged between two user data fields and containing at least one transition; and

a readback channel coupled to the readback head, wherein the readback channel adjusts at least one selected readback parameter of the readback channel based on information contained in at least one control field.

23. The readback system according to claim 22, wherein at least one control field contains a first portion having a predetermined number of zeroes preceding a portion containing each transition of the control field, which precedes a second portion having the predetermined number of zeroes.

24. The readback system according to claim 22, wherein at least two successive control fields contain only one transition,

wherein the selected readback channel parameter is a frequency of a readback channel system clock, and

wherein the readback channel adjusts the readback channel system clock based on a relative temporal position of the transition in each successive control field.

25. The readback system according to claim 22, wherein at least one control field contains a transition having a predetermined amplitude,

wherein the selected readback channel parameter is a gain of the readback signal, and

wherein the readback channel adjusts the gain of the readback signal based on the predetermined amplitude of the transition in each control field.

26. The readback system according to claim 25, wherein the readback channel system clock is adjusted by adjusting at least one of a frequency and a phase of the readback channel system clock.

27. The readback system according to claim 22, wherein at least one control field contains a dibit,

wherein the selected readback channel parameter is a frequency of a readback channel system clock, and

wherein the readback channel adjusts the readback channel system clock based on a relative temporal position a zero crossing of each dibit in each successive control field.

28. The readback system according to claim 26, wherein the readback channel system clock is adjusted by adjusting at least one of a frequency and a phase of the readback channel system clock.

29. The readback system according to claim 22, wherein at least one control field contains two transitions and each transition has a predetermined amplitude,

wherein the selected readback channel parameter is a gain of the readback signal, and

wherein the readback channel adjusts the gain of the readback signal based on the predetermined amplitude of each transition in each control field.

30. The readback system according to claim 22, wherein at least one control field contains a positive and a negative transition and each transition has a predetermined amplitude,

wherein the selected readback channel parameter is an amplitude asymmetry of the readback signal, and

wherein the readback channel adjusts the amplitude asymmetry of the readback signal based on the predetermined amplitude of each transition in each control field.

31. The readback system according to claim 30, wherein the readback channel changes a bias current through a magnetoresistive sensor so that the magnetoresistive sensor operates in a linear operating mode.

32. The readback system according to claim 22, wherein at least one control field contains a transition having a predetermined amplitude,

wherein the selected readback channel parameter is a equalization response of the readback signal, and

wherein the readback channel adjusts the equalization response of the readback signal based on the predetermined amplitude of the transition in each control field.

33. The readback system according to claim 22, wherein the readback channel adjusts at least one selected readback parameter by optimizing at least one selected readback channel parameter based on information contained in at least one control field.

34. The readback system according to claim 22, wherein each control field has a predetermined length.

35. The readback system according to claim 22, wherein the readback channel is part of a hard tape drive.

36. The readback system according to claim 22, wherein the readback channel is part of a magnetic disk drive.